

AMENDMENTS TO THE CLAIMS:

Claim 1 (currently amended):           A display and edit device for a program containing function blocks, said function blocks serving to use a language element referred to as function block definitions to establish input and output parameters, internal variables and operations algorithms of the function block and to create copies referred to as function block instances by instantiating said function block definitions when said function block is incorporated in a user program, said device comprising:

          a program memory storing [[a]] said program ~~to be processed~~;

          a block definition analyzer for accessing said program stored in said program memory and analyzing structure relationship of function block definitions contained in said program;

          a block instance analyzer for accessing said program stored in said program memory and analyzing structure relationship of function block instances contained in said program;

          a structure display device for causing to simultaneously display structure relationship of the analyzed structure relationship of said function block definition and structure relationship of the analyzed structure relationship of said function block instance;

          an instance display device for causing to display a selected function block definition or a selected function block instance together with said structure relationship of the analyzed structure relationship of said function block definition and said structure relationship of the analyzed structure relationship of said function block instance; and

          a display judging device for causing said structure display device to display with an emphasis the structure relationship of said selected function block definition or selected function block instance or a corresponding portion of the structure relationship of the function block instance;

          wherein, when a function block included in said selected function block instance displayed by said instance display device is selected ~~and said instance display device displays said selected function block instance~~, said display judging device causes said structure display device to display with an emphasis said function block in the structure relationship of said selected function block instance; and

wherein, when a function block included in said selected function block definition displayed by said instance display device is selected ~~and said instance display device displays said selected function block function~~, said display judging device causes said structure display device to display with an emphasis said function block in the structure relationship of said selected function block definition.

Claim 2 (canceled).

Claim 3 (original): The display and edit device of claim 1 further comprising a display selector that selectively determines, when a command to switch display is received, whether a function block definition or a function block instance should be displayed, based on current display and current conditions of processing by said display and edit device and causes the determined display to be made.

Claim 4 (canceled).

Claim 5 (currently amended): A method of displaying a program including function blocks for a display and edit device, said function blocks serving to use a language element referred to as function block definitions to establish input and output parameters, internal variables and operations algorithms of the function block and to create copies referred to as function block instances by instantiating said function block definitions when said function block is incorporated in a user program, said method comprising the steps of:

accessing said program stored in a program memory and analyzing structure relationship of function block definitions contained in said program;

accessing said program stored in said program memory and analyzing structure relationship of function block instances contained in said program;

displaying simultaneously the analyzed structure relationship of function block definitions and the analyzed structure relationship of function block instances on the same display screen;

causing an instance display device to display a selected function block definition or a selected function block instance together with said structure relationship of the analyzed structure relationship of said function block definition and said structure relationship of the analyzed structure relationship of said function block instance; and

causing a display judging device to cause said structure display device to display with an emphasis the structure relationship of said selected function block definition or selected function block instance or a corresponding portion of the structure relationship of the function block instance;

wherein, when a function block included in said selected function block instance displayed by said instance display device is selected ~~and said instance display device displays said selected function block instance~~, said display judging device causes said structure display device to display with an emphasis said function block in the structure relationship of said selected function block instance; and

wherein, when a function block included in said selected function block definition displayed by said instance display device is selected ~~and said instance display device displays said selected function block function~~, said display judging device causes said structure display device to display with an emphasis said function block in the structure relationship of said selected function block definition.

Claim 6 (currently amended):           A computer-readable recording medium embodying a program for displaying and editing a user program including function blocks by a display and edit device, said program comprising:

a first program portion for accessing a program containing function blocks and being stored in a program memory, said function blocks serving to use a language element referred to as function block definitions to establish input and output parameters, internal variables and operations algorithms of the function block and to create copies referred to as function block instances by instantiating said function block definitions when said function block is incorporated in a user program, said first program portion analyzing structure relationship of function block definitions contained in said program;

a second program portion for accessing said program stored in said program memory and analyzing structure relationship of function block instances contained in said program; and

a third program portion for displaying the analyzed structure relationship of function block definitions and the analyzed structure relationship of function block instances on the same display screen;

said program serving to cause an instance display device to display a selected function block definition or a selected function block instance together with said structure relationship of the analyzed structure relationship of said function block definition and said structure relationship of the analyzed structure relationship of said function block instance;

said program further serving to cause a display judging device to cause said structure display device to display with an emphasis the structure relationship of said selected function block definition or selected function block instance or a corresponding portion of the structure relationship of the function block instance;

wherein, when a function block included in said selected function block instance displayed by said instance display device is selected ~~and said instance display device displays said selected function block instance~~, said display judging device causes said structure display device to display with an emphasis said function block in the structure relationship of said selected function block instance; and

wherein, when a function block included in said selected function block definition displayed by said instance display device is selected ~~and said instance display device displays said selected function block function~~, said display judging device causes said structure display device to display with an emphasis said function block in the structure relationship of said selected function block definition.

Claim 7 (previously presented):      The display and edit device of claim 1 wherein said block definition analyzer is for accessing said program stored in said program memory, analyzing algorithm of function block definition which is detected in said program, carrying out a process of judging presence or absence of any function block definition that is being called in said algorithm and, if a called function block definition is found to be present, connecting said

called function block definition found to be present below an original function block definition, repeating said process until a function block definition not being called is reached to thereby analyze a connection relationship among function block definitions, and analyzing structure relationship of function block definitions contained in said program; and

wherein said block instance analyzer is for accessing said program stored in said program memory, analyzing algorithm of function block instance which is detected in said program, carrying out a process of judging presence or absence of any function block instance that is being called in said algorithm and, if a called function block instance is found to be present, connecting said called function block instance found to be present below an original function block instance, repeating said process until a function block instance not being called is reached to thereby analyze a connection relationship among function block instances, and analyzing structure relationship of function block instances contained in said program; and

a structure display device for causing to simultaneously display structure relationship of the analyzed structure relationship of said function block definition and structure relationship of the analyzed structure relationship of said function block instance.

Claim 8 (previously presented): The method of claim 5 comprising the steps of:  
accessing said program stored in a program memory, analyzing algorithm of function block definition which is detected in said program, carrying out a process of judging presence or absence of any function block definition that is being called in said algorithm and, if a called function block definition is found to be present, connecting said called function block definition found to be present below an original function block definition, repeating said process until a function block definition not being called is reached to thereby analyze a connection relationship among function block definitions, and analyzing structure relationship of function block definitions contained in said program; and

accessing said program, analyzing algorithm of function block instance which is detected in said program, carrying out a process of judging presence or absence of any function block instance that is being called in said algorithm and, if a called function block instance is found to be present, connecting said called function block instance found to be present below an original

function block instance, repeating said process until a function block instance not being called is reached to thereby analyze a connection relationship among function block instances, and analyzing structure relationship of function block instances contained in said program.